Introducing a new water management tool from the Department of Natural Resources!

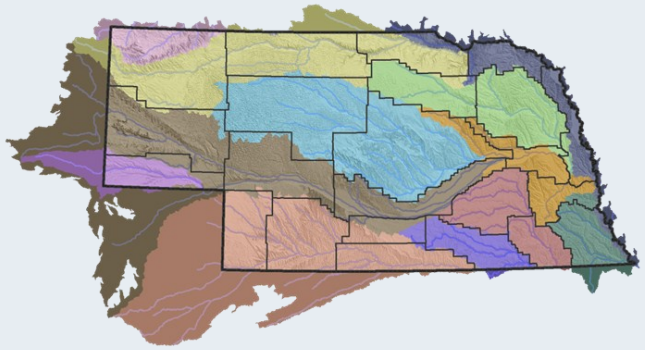
INSIGHT

an Integrated Network of Scientific Information and GeoHydrological Tools

One of the Department of Natural Resources' (Department) goals is to provide useful tools and information to water managers, scientists, and the public throughout the state.

A component of this goal is the development of INSIGHT, which is a web-based tool that provides a series of maps, freely available to the public, that are directly linked to basin-specific data on water supply and demand.

INSIGHT offers a comprehensive and easily accessible compilation of the water resource-related work being done across the state.

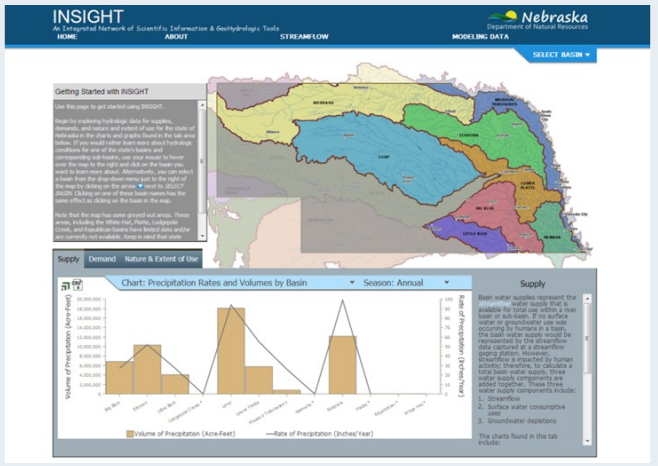


Surface Water Basins

Water managers are tasked with the challenge of first trying to understand the supply of water and its various demands, and then managing these systems in such a way that water users needs may be met. In order to manage water systems effectively, managers work to balance the most up-to-date and accurate technical information with public interest.

The Department can assist state and local water managers, policy-makers, and the public at large with this task by providing technical expertise, as well as assistance with water management planning and coordination. As a management tool, INSIGHT is unique in that it allows users to weigh decisions based on the current and projected balances between water supply and demand. This feature allows the Department to more effectively target technical, financial, and administrative resources.

The Department also acts as a conduit through which water-related information gathered via technical analyses can be shared with the public. INSIGHT is an important aspect of the Department's mission to make technical information regarding the state's water resources accessible to the public. Because INSIGHT allows users to tailor the level of detail and amount of information that they access to their specific needs, it can serve as a resource for many user levels.



INSIGHT can aid water managers in understanding current and future demands, evaluating the effectiveness of water management strategies, and assessing critical areas of water shortage. An example of how the information presented in INSIGHT can assist with water management decisions is given on the back side of this handout.

In addition to serving as a resource for water managers, INSIGHT provides the public with a means of better understanding their own water challenges and opportunities.

For more information about the Department or INSIGHT, please visit:

http://dnr.nebraska.gov/insight/

Nebraska
Department of Natural Resources

Protecting existing water investments

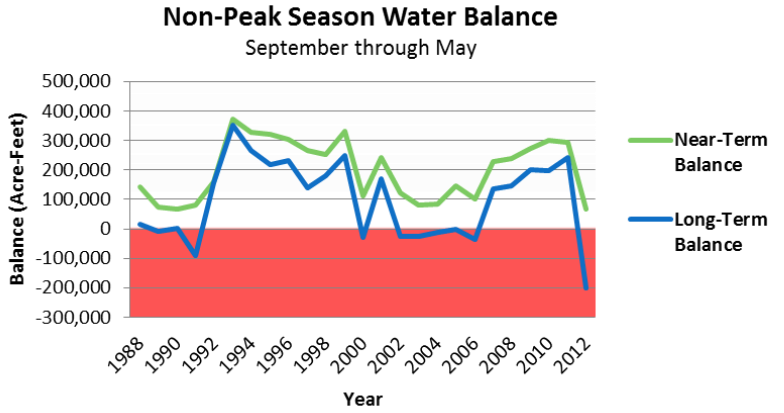
A goal of the integrated management process is to protect existing water users, including infrastructure investments that existing users have made, by working to ensure a balance between water supplies and uses.

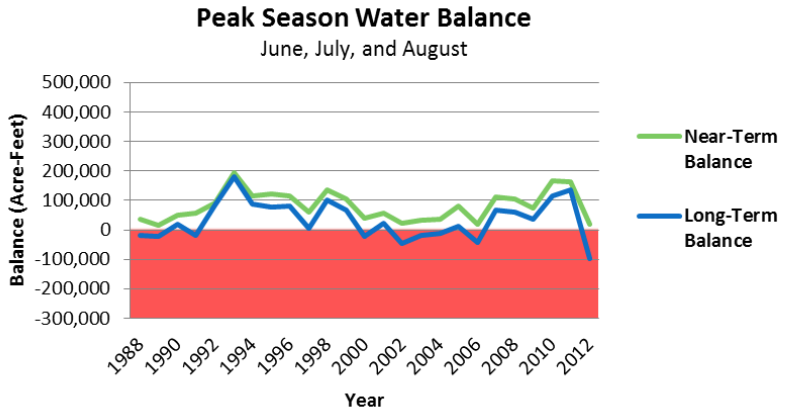
INSIGHT assists with the Department's review of the balance between supplies and uses, as can be seen in the balance charts discussed below, and ensures that informed management decisions can be made to help reach the goal of protecting existing users.

An example

The figures on the right show hypothetical data that are available on INSIGHT, depicting the near-term* and long-term* water balance for one basin during both peak and non-peak seasons. A positive water balance (above the red) indicates that there is sufficient supply to meet the demand, whereas a negative balance (in the red) indicates that the demand exceeds the supply some of the time.

As seen in this example, it is not unusual for the long-term water balance in a basin to show a more negative outlook than the near-term water balance. A negative long-term balance means that if current usage levels continue in this basin, at times there may not be enough water available in the future to meet some existing water demands. This and other information presented in INSIGHT can help water managers identify potential problems before they occur and make proactive water management decisions.





*The difference between near-term and long-term water balance is the way in which the impacts of groundwater demands are calculated. The near-term calculation includes only the current groundwater depletion due to pumping, while the long-term calculation includes the full impact of groundwater consumption once the system has reached equilibrium .

Examples of some of the management strategies available to protect existing users

Option 1: Retime flows so that water is available when it is needed

Both water supply and water usage fluctuate throughout the year, such that times of high water supply do not always occur during peak usage. Conjunctive management is the process of storing excess water when it is plentiful and then releasing it for use when it is needed.

Option 2: Develop systems to distinguish between "new" and existing users

An Integrated Management Plan (IMP) may distinguish between new and existing uses and apply regulation to only "new" uses. This provides the benefit of protecting existing uses while allowing for certain levels of new use.

- *Neb. Rev. Stat.* § 46-739 6(b)

Option 3: Regulate all water uses to accommodate new uses

The IMP process can be utilized to allow new development, with an understanding that if water supplies prove to be insufficient, or new uses impact existing uses, then all uses can be placed into a regulatory scheme to re-balance water supplies and water uses.